

Comparative Public Opinion and Knowledge on Global Climatic Change and the Kyoto Protocol: The U.S. versus the World?

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Abstract

Using a variety of public opinion polls over a number of years and from a number of countries this paper revisits the questions of cross-national public concern for global warming first examined over a decade ago. Although the scientific community today speaks out on global climatic change in essentially a unified voice concerning its anthropogenic causes and potential devastating impacts at the global level, it remains the case that many citizens of a number of nations still seem to harbor considerable uncertainties about the problem itself. Although it could be argued that there has been a slight improvement over the last decade in the public's understanding regarding the anthropogenic causes of global warming, the people of all the nations studied remain largely uninformed about the problem. In a recent international study on knowledge about global warming, the citizens of Mexico led all fifteen countries surveyed in 2001 with just twenty-six percent of the survey respondents correctly identifying burning fossil fuels as the primary cause of global warming. The citizens of the U.S., among the most educated in the world, were somewhere in the middle of the pack, tied with the citizens of Brazil at fifteen percent, but slightly lower than Cubans. In response to President Bush's withdrawal of the Kyoto Protocol in 1991, the U.S. public appears to be far more supportive of the action than the citizens of a number of European countries where there was considerable outrage about the decision.

Introduction

The world's scientists today speak with a near unified voice on the existence of a human induced greenhouse effect and in least in general ways on its potential dramatic impacts. They argue that the resulting rising temperatures will likely have serious consequences for humans and ecosystems alike. The citizens of various nations of the world, on

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the other hand, appear to possess wide-ranging views and levels of understandings about global climate change as a real or potential threat. The purpose of this paper is to explore comparatively the views, attitudes and knowledge of ordinary citizens from a number of countries where public opinion data exists on global climate change itself. In part it attempts to build upon an earlier effort at comparisons using data from the early 1990s (see Dunlap 1998) to see if there have been any dramatic changes over the past ten years. In particular, the author compares the views, attitudes and knowledge of the U.S. citizens to those of other countries, especially around the Kyoto Protocol, the international agreement created to regulate the release of greenhouse gases among the world's nations.

Only in a few countries, mostly Western, such as the U.S., Great Britain, France, Italy, and Germany are there available recent data on this topic. Still the data available for these countries are limited. There exist even less recent and extensive data for a number of other countries including some from the poorer, industrializing nations such as China, Nigeria, Mexico, and Indonesia. However, as we shall see, like the current position of the Bush Administration on global warming and other foreign policies, as compared to other governments, the U.S. populace appears to be similarly "out of step" on climate change when compared to the citizens of a number of European countries. This is especially true when it comes to supporting the Kyoto Protocol. On other items however, such as knowledge about the causes of global warming, the U.S. public are still more or less equally misinformed as their cross-national colleagues, but are among the most misinformed of the developed nations surveyed. Only the Japanese and the French are more so.

Global Concern for the Environment

One of the major social science findings on the environment in the 1990s was the discovery of "global environmentalism" or the expression of environmental concern by citizens in countries worldwide (Dunlap et al. 1993; Brechin and Kempton 1994). This finding came about, interestingly enough, as a consequence of some of the prepara-

tions for the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil. Two very well known polling organizations, Louis Harris & Associates and The Gallup Organization, became involved in two separate but pioneering efforts to survey the general public on the environment cross-nationally that for the first time included countries both rich and poor.²

Given established beliefs at the time and their theoretical underpinnings, it was assumed from the early studies on environmentalism in the U.S. and Europe that public concern for the environment was a consequence, in its broadest sense, of economic wealth. It was viewed as an outcome of both rapid industrialization and the financial means to address those problems. Consequently, environmentalism was considered a product unique to Western industrialized countries.

Environmentalism as a Western phenomenon also received theoretical support from Ronald Inglehart's Postmaterialist Values Thesis (Inglehart 1990, 1997). Based upon this theory, concern for the environment was thought to be the result more specifically from an intergenerational change in cultural values resulting from unprecedented political stability and economic welfare following World War II. Built on a notion of Maslow's Hierarchy of Needs (Maslow 1954), a postmaterialist concern for the environment could be characterized as a luxury good, an object "purchased" with the extra resources from greater wealth or similarly demanded by yet unattained personal desire, after other more basic needs had been met. In short, the rise of environmentalism in the West was considered as a consequence of the rise of postmaterialist values that was also occurring throughout the same world region.

This particular Western view on the genesis of environmentalism was shattered with new empirical data, coming from a number of sources, with the most important being the first cross-national public surveys that included poorer industrializing countries in their studies. The best of these efforts was the 1992 Gallup Health of the Planet report (HOP), noted above.

The Gallup study of 24 nations, with varying level of economic wealth and political systems and stability, showed that concern for a number of environmental issues were high among citizens of most nations, rich or poor. Even statistical tests based on results of on national probability sampling (country-wide representation) that on a wide number of environmental issues demonstrated that there were few meaningful differences in levels of concern by the citizens of richer or poorer nations. In fact only on two environmental items, 1) rating environmental problems as serious for the nation, and 2) air pollution and smog as a very serious personal concern, were there significant differences between the country groups. And in both cases greater concern rested with the citizens of poorer nations rather than wealthier ones (see Brechin & Kempton 1994). Given the findings for broad international concern for environmental problems, it would be reasonable to expect this would include concern about global climatic change as well.

A Global Consensus on Global Warming?

Although now over ten years old, the largest publicly released cross-national study on the public attitudes toward global warming remains Gallup's HOP survey, noted above. As Table 1 presents below, the percentage of respondents who personally find global warming a serious problem in the world vary enormously. From Table 1, one can see that those respondents who indicate that they believe global warming is a "very serious problem" range from twenty-six percent in Nigeria to seventy-three percent in Germany. Of the twenty-four countries in the study, however, more than half, thirteen of them have more than fifty percent of their respective populations who feel global warming is a very serious problem. The U.S. populace stands at forty-seven percent in this survey, the same as South Korea's, both of which are in the bottom half of all countries. However, if we were to place half of the countries in a separate group of industrialized countries and the other half in an industrializing nations group, analyses would show no significant differences amongst the two groups on the question of global warm-

ing, as well as other international environmental problems (see Brechin and Kempton 1994; Brechin 1999).

Table 1 Cross National Public Perceptions on the Seriousness of Global Warming Health of the Planet Survey¹³					
	Very Serious %	Somewhat Serious %	Not very Serious %	Not At All Serious %	Not Sure/DK %
Nigeria	26	13	11	11	39
India	36	29	10	3	22
Philippines	40	35	15	2	8
Turkey	45	22	9	3	21
Poland	59	22	5	1	13
Chile	59	23	7	1	10
Mexico	62	14	3	1	20
Uruguay	69	14	2	1	14
Brazil	71	14	6	1	8
Hungary	33	38	8	1	20
Russia	40	26	9	1	24
Portugal	72	16	2	0	10
Korea (Rep)	47	30	8	1	14
Ireland	63	23	4	1	9
Great Britain	62	25	4	1	8
Netherlands	36	39	14	1	10
Canada	58	27	5	1	9
USA	47	31	7	3	12
Denmark	55	25	6	1	13
Germany	73	21	2	1	3
Norway	66	23	3	2	6
Japan	47	33	5	1	14
Finland	34	43	17	2	4
Switzerland	62	27	6	1	4
Source: Dunlap, R., G.H. Gallup and A.M. Gallup. 1993. Health of the Planet Survey: A George H. Memorial Survey. Gallup International Institute, Princeton, NJ USA					

If we were to combine responses to include those who said global warming was a “very serious” problem with those who said it was a “somewhat serious” problem, that is, all those who find global warming at least somewhat serious, only one country of the twenty-four, Nigeria, with thirty-nine percent, would not fall within this category of broad support. Sixty-five percent or more of the populace in each of the remaining twenty-three nations are at least somewhat concerned about global warming. From these results it is clear to see that the majorities in most of these countries seem concerned about global warming. In sum, even a decade ago there appeared to be a global public consensus on global warming, years before the science was as certain as it is today. It could be argued then, that given the more recent scientific evidence on global climatic change, there would be even greater cross-national public consensus on the issue today. Unfortunately we have only limited cross-national data on recent public opinion on global warming that we review shortly. We begin with data on the U.S. public.

The U.S. Public and Global Climatic Change

One of the best longitudinal data on global warming that we have on U.S. public opinion today comes from fairly sporadic surveys by the Gallup Organization from 1989 to 2003. See Table 2 below. The question used in this survey was worded somewhat differently than in the HOP study just discussed above. Instead of level of “seriousness of concern” about a global environmental problem, this question focused on level of “personal worry”. It reads, “I am going to read you a list of environmental problems. As I read each one, please tell me if you *personally* worry about this problem a great deal, a fair amount, only a little, or not at all. How much do you personally worry about the ‘greenhouse effect’ or global warming?” From this data we can see that over the years 1989 to 2003 anywhere from twenty-four percent to forty percent of the U.S. public personally worried “a great deal” about global warming. This is compared to only twelve to seventeen percent of U.S. respondents who did not worry about it at all. Even with the two different wordings on testing public concern regarding global warming, it is quite obvious that a majority of U.S. respondents at least

continue to worry a fair amount (50-72%) about the phenomenon and have done so over a number of years.

Table 2 U.S. Public Opinion on Global Warming 1989-2002¹⁴ The question read: "I am going to read you a list of environmental problems. As I read each one, please tell me if you personally worry about this problem a great deal, a fair amount, only a little, or not at all. First, how much to you personally worry about....." E: The "greenhouse effect" or global warming					
	Great Deal %	Fair Amount %	Only a Little %	Not at All %	No Opinion %
2003 Mar 3-5	28	30	23	17	2
2002 Mar 4-7	29	29	23	17	2
2001 Mar 5-7	33	30	22	13	2
2000 Apr 3-9	40	32	15	12	1
1999 Apr 13-14	34	34	18	12	2
1999 Mar 12-14	28	31	23	16	2
1997 Oct 27-28	24	26	29	17	4
1991 Apr 11-14	35	27	22	12	5
1990 Apr 5-8	30	27	20	16	6
1989 May 4-7	35	28	18	12	7
Source: Saad, Lydia. 2002. "Poll analyses - Americans sharply divided on seriousness of global warming- Only one-third consider the problem grave." Poll Analyses. Gallup News Service, March 25. The Gallup Organization, http://www.gallup.com/poll/releases/pr020419.asp . Accessed September 3, 2002					

How does Global Warming Rank to Other Environmental Problems in the U.S. Today?

Global warming, however, typically ranks considerably lower by the U. S. public when compared among other environmental concerns. In

the same 2003 Gallup survey noted above respondents ranked global warming ninth out of ten problems with twenty-eight percent respectively saying they worried “a great deal” (as noted above); only acid rain at twenty-four percent respectively was lower. Pollution of drinking water was ranked the highest with fifty-four percent of the respondents indicating that they were worried a great deal. This was followed by pollution of rivers, lakes, and reservoirs (fifty-one percent); contamination of soil and water by toxic waste (fifty-one percent); maintenance of the nation’s supply of fresh water for household needs (forty-nine percent); air pollution (forty-two percent); the loss of tropical rain forests (thirty-nine percent); damage to the earth’s ozone layer (thirty-five percent); and extinction of plant and animal species (thirty-four percent) (Carroll 2002; Saad 2003). Americans, it seems, in comparison to other environmental problems are relatively less concerned about global warming. This relatively low ranking (or issue salience) has remained fairly consistent over the years.

Comparative Global Warming Rankings

As we shall see, however, citizens of a number of the other countries have similarly low rankings for global warming as in the U.S.; only a few countries ranked it high among other environmental problems. The best comparative data on cross-national environmental rankings is again the 1992 HOP survey data.

In the HOP survey data from 24 countries, we see more or less the same low ranking of global warming as in the U.S. Only Brazil, Japan, and West Germany of the twenty-four countries ranked global warming at or near the top of the list of environmental concerns. See Table 3. Ten of the twenty-four countries ranked global warming at or near the bottom of their lists.³ The remaining eleven countries ranked global warming in the middle to lower end of their environmental concerns. These findings suggest that many other countries ranked global warming similarly as the U.S., although there are some international differences. What is missing is a full explanation for this trend.⁴

Table 3
Comparative Rankings of Global Environmental Problems
Health of the Planet Survey¹⁵
 Percent saying "Very Serious"

Country	Air Pol.	Water Pol.	Con. Soil	Loss of Species	Loss of Rainforest	Global Warming	Loss of Ozone
Canada	61	77	57	58	71	58	70
U.S.	60	71	54	49	63	47	56
Brazil	70	69	56	73	77	71	74
Chile	73	77	64	72	71	59	78
Mexico	77	78	77	81	80	62	71
Uruguay	78	77	68	76	80	69	84
Japan	43	43	29	37	47	47	55
S. Korea	55	49	27	33	24	47	54
Philippines	49	46	42	44	65	40	37
India	65	50	35	48	54	36	40
Turkey	72	61	54	61	63	45	59
Hungary	54	53	42	47	47	33	47

Table 3 (Continued)

Comparative Rankings of Global Environmental Problems

Health of the Planet Survey

Percent saying "Very Serious"

Recent saying - very serious							
Country	Air Pol.	Water Pol.	Con. Soil	Loss of Species	Loss of Rainforest	Global Warming	Loss of Ozone
Poland	77	80	73	76	73	59	66
Russia	71	74	63	61	65	40	59
Denmark	61	72	42	62	84	55	65
Finland	58	67	52	48	71	34	60
Norway	69	71	55	61	80	66	70
W. Germany	61	70	55	69	80	73	78
Great Britain	52	72	50	60	79	62	66
Ireland	63	74	52	55	67	63	68
Netherlands	30	43	36	45	70	36	47
Portugal	78	81	71	68	82	72	79
Switzerland	62	69	46	61	78	62	68
Nigeria	43	44	47	34	31	26	27

Source: Dunlap, R., G.H. Gallup and A.M. Gallup. 1993. Health of the Planet Survey: A George H. Gallup Memorial Survey. Gallup International Institute, Princeton, NJ USA.

Scientific Assessment of Global Climate Change: The IPCC Third Assessment Report

The world's climate scientists, themselves, however, share near universal agreement on the cause of global climatic change and on their concerns for our common environmental future if greenhouse gases are allowed to continue to accumulate in the global atmosphere. At the most recent and Third Intergovernmental Panel on Climate Change⁵ meetings held in 2000 the scientists strengthen their earlier statements on the human contribution to global climatic change. The authors of the Third Assessment Report indicated that CO₂ levels in the atmosphere from the period of 1000-1750 AD compared to the year 2000 AD increased thirty-one percent, from 280 ppm to 368 ppm (IPCC 2001). Methane (CH₄), the most efficient greenhouse gas, increased one hundred fifty-one percent over the same time period (IPCC 2001). These and other indicators point to anthropogenic sources of change, with the burning of fossil fuels as the most prominent cause of global warming, in spite of some natural increases. Regarding potential effects on climate, the global mean surface temperature of the earth has increased 0.6 degree Celsius during the 20th century (IPCC 2001). Likewise, the northern hemisphere surface temperature has increased more so in the 20th century than during any other century of the last 1,000 years with the 1990s likely the warmest decade of the millennium and 1998 the single warmest year over the same time period (IPCC 2001). The Third Assessment Report also indicated that catastrophic changes could take place due to global warming including rising sea levels, increased precipitation, glacial melting, extreme weather, flooding, drought and loss of plant and animal species. The IPCC also found the earth's atmosphere is warming faster than expected and these trends were likely to continue if not accelerate during the Twenty-first Century (IPCC 2001).

Although it is becoming increasingly clear that global warming is indeed a real threat and its sources are mostly man-made, it is also quite clear that not all countries are equally responsible for the production of global greenhouse gases. Table 4 below shows the largest, top ten, emitters of CO₂ from fuel combustion. We see from the table that

the U.S. is by far the world's leading producer of CO₂. The two columns list the countries in terms of their designation as part of the Kyoto Protocol, discussed again later. Annex I Parties are those industrialized countries that would be required to curb their emissions as part of the agreement. Non-Annex I Parties are those industrializing countries that would not be required by law to reduce their emissions. As will be mentioned below, the differences between the two lists provide one of the chief stumbling blocks to the Bush Administration's approval of the Kyoto Protocol.

Table 4 CO₂ emissions from fuel combustion, 1998 Largest Emitters: Annex I and Non-Annex I Parties (Millions of tones of CO₂)					
	Top Ten: Annex I & non-Annex I Parties		% World	Top Ten: Annex I Parties	
1	United States	5,410	24%	United States	5,409.75
2	China	2,893	13%	Russian Federation	1,415.78
3	Russian Federation	1,416	6%	Japan	1,128.34
4	Japan	1,128	5%	Germany	857.05
5	Germany	857	4%	United Kingdom	549.51
6	India	908	4%	Canada	477.25
7	United Kingdom	550	2%	Italy	425.99
8	Canada	477	2%	France	375.5
9	Italy	426	2%	Ukraine	358.78
10	France	376	2%	Poland	320.16
	Total	14,441		Total	11,318.11
	% of world total	64%		% of world total	50%
				% of Annex I total	85%

	Groups		Total Emissions		% of World Total
	World#		22,726		na
	Annex I Parties		13,383		59%
	Annex II Parties		10,792		47%
	European Union		3,171		14%
	EIT Parties		2,592		11%
	Non-Annex I Parties		8,622		38%
Source: Adapted from IEA CO ₂ emissions from fuel combustion 1971-1998, Paris, 2000. See Climate Change Information Kit published by UNEP and UNFCCC, page 62. http://unfccc.int/resource/iuckit/infokit2001.pdf					

Cross-National Knowledge on the Sources of Greenhouse Gases

How well does the general public cross-nationally understand the anthropogenic sources of gases that cause the greenhouse effect? Previous research has shown that most citizens in the few countries studied do not, even in wealthy industrialized countries (Dunlap 1998; Kempton 1991, 1993; Kempton et al. 1995; Lofstedt 1991, 1992, 1993; Rudig 1995). Have the understandings about global warming by the world's populations improved over the last decade? This is potentially important, especially in more democratic countries where with proper knowledge citizen voices could more likely demand and support more effective policies to combat global climatic change. Better-informed citizens everywhere may more likely shape their own behaviors to contribute more positively in protecting their environments instead of threatening them.⁶

Two very interesting sets of recent findings from the research group Environics International focused on the public's understandings of the causes of global warming. Although through the work of several American anthropologists (e.g. Kempton et al. 1995) and others, it has been known for a number of years now that the U.S. public so far lacks a clear understanding of how human activities actually contribute to

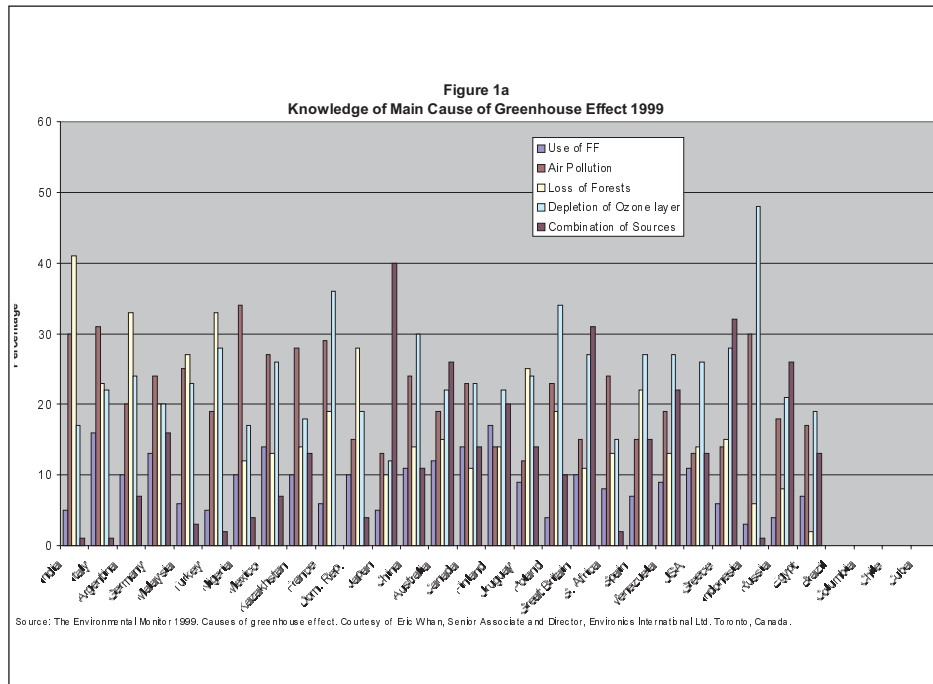
the greenhouse effect. The data from Environics International in 1999 and 2001 clearly show that the lack of knowledge is shared cross-nationally as well, even among those countries such as Germany that have a strong, pro-environmental image, and Japan, home to the Kyoto Protocol. The Environics International question reads,

One of the ways in which humans may be affecting the world's climates is called the Greenhouse Effect. As far as you know which one the following is the main cause of the greenhouse effect: 1) Loss of forests; 2) Depletion of the Earth's Ozone Layer; 3) Air pollution from factories and cars; and 4) Use of fossil fuels, such as oil, gas and coal.⁷

Citizens in twenty-seven countries were studied in 1999. See Figure 1a. In each country most of the respondents did not know that burning fossil fuels, such as oil, gas and coal, and their resulting release of CO₂ was the main human source of greenhouse gases. The country with the highest correct responses in the 1999 study was Finland, but even there only seventeen percent of those surveyed correctly identified the burning of fossil fuels as the main source of anthropogenic contributions to global warming. The lowest was Indonesia where only three percent of the respondents correctly identified the main source. The U.S. public stood in 1999 at eleven percent, the same as China's. Citizens in a number of countries thought the loss of forests and air pollution were the main factors. Although air pollution and loss of forests, among others, are each anthropogenic contributors to the greenhouse effect, the release of carbon dioxide from burning fossil fuels remains the primary cause.

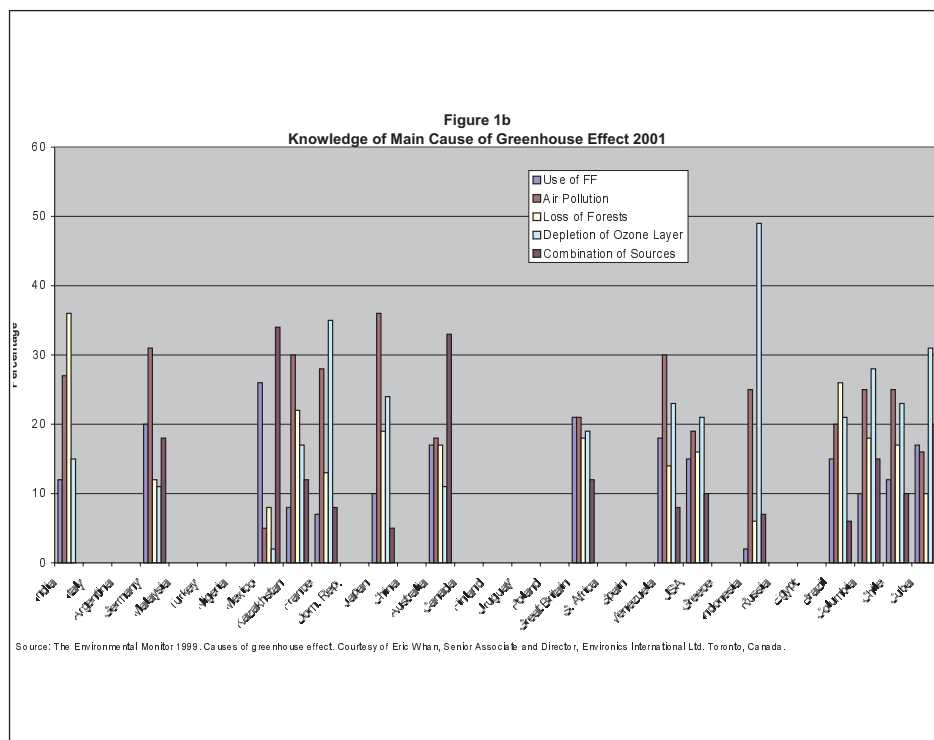
Many people cross-culturally also share the misconception on the role the thinning of the ozone layer of the upper atmosphere plays in encouraging global warming. This misconception too has been noted for some time in the social science literature (e.g. Kempton 1993, Kempton et al. 1995; see too Dunlap 1998). From the same 1999 data from Environics International, Japan, with twelve percent, had the lowest percentage of respondents who identified the loss of the ozone layer as the main source of global warming; Indonesia again had the largest with forty-eight percent. Twenty-six percent of U.S. respondents selected the ozone layer loss as the principal source of global

warming, the same as Mexico's on this particular issue in this 1999 study. See Figure 1a below.



When comparing the 1999 results with those of 2001, only eleven of the original twenty-seven countries were the same and there were four new countries added. See Figure 1b. Although the results are quite similar between the two different years, it could be argued that there has been a general trend in better understanding the importance of burning fossil fuels in creating greenhouse gases. Perhaps the most striking finding from these cross-cultural comparisons is how poorly people from a wide-ranging number of countries understand the anthropogenic causes of global warming. In addition if we conducted statistical tests [not shown] on the level of knowledge between the richer and poorer countries as separate groups we would not find any statistical differences for either group in both 1999 and 2001. To illustrate, the citizens of the U.S. share similar lack of knowledge

about the sources of global warming with a number of other countries such as Cuba and China. Likewise, in both 1999 and 2001, the citizens of Japan, the founding country of the Kyoto Protocol, possessed even less understanding about greenhouse sources than U.S. residents. The French, at seven percent in 2001, were the most misinformed of all industrialized countries and second lowest overall. Perhaps surprisingly, Mexican citizens, with twenty-six percent of the respondents in the 2001 study correctly identifying fossil fuels as the primary anthropogenic source of greenhouse gases lead all nations in that study and were near the top in the 1999 survey. Current sources, however, lack the contextual information on what is happening in each country that might shed light on these outcomes, including the shared level of ignorance between citizens of richer and poorer countries.



Cross-National Reactions to the Bush Administration's Position on the Kyoto Protocol

The Kyoto Protocol is a legally binding international agreement that grew out of the 1992 United Nations Framework Convention on Climate Change as part of the larger United Nations Conference on Environment and Development in Rio de Janeiro, Brazil. It is specifically the product of a 1997 Conference of Parties (meeting of nations) in Kyoto Japan that committed industrialized nations, upon ratification, to reduce emissions of the six greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur dioxide over a fixed period of time. Although the specific emissions level per country could vary, under the protocol the overall emissions from industrialized countries would be reduced 5.2 percent below 1990 levels over a five-year period, 2008-2012 (Kyoda News International, Ltd. 2002). Developing countries, such as China, are not legally bound by the requirements. The U.S., the world leader in emissions would be required to cut emissions by seven percent (e.g. Kleiner 2001). Kyoto would enter into force when not fewer than 55 Parties to the Convention, incorporating Annex 1 Parties, and which account for at least 55 percent of the total carbon dioxide emissions for 1990 from that group (UNFCCC, n.d).

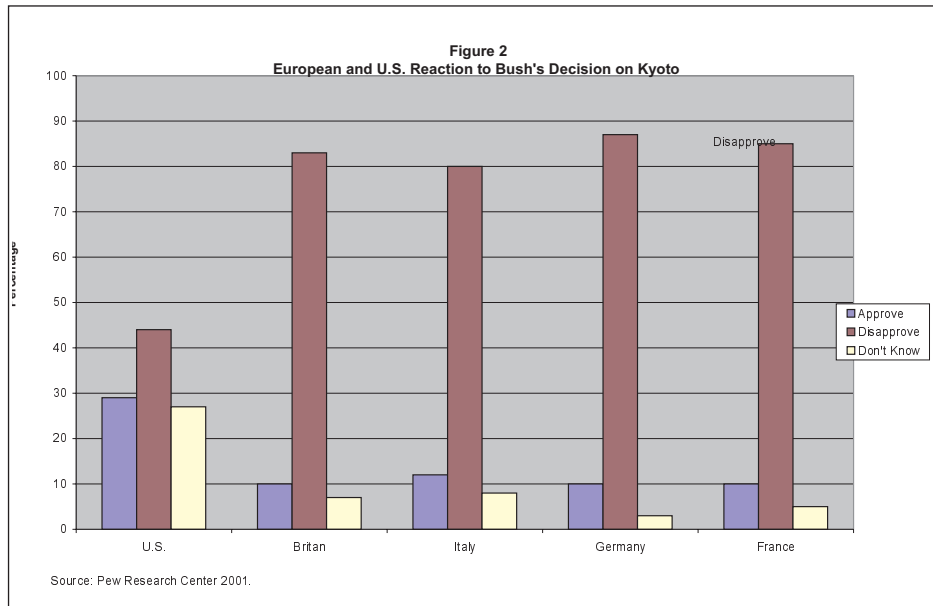
In a June 11, 2001 speech at the White House, President Bush called the 1997 Kyoto protocol "fatally flawed in fundamental ways" (White House 2001) and pulled the U.S. out of the agreement. The Bush Administration's rationale for the withdrawal from the agreement was that in their view it was unfair to American businesses and would unnecessarily hurt the U.S. economy. The Bush Administration was particularly upset that both China and India, two of the leading producers of greenhouse gases, were exempted from the group of countries required to reduce their emissions. The developing countries have been exempted mainly due to the fact that they are not responsible for the mass accumulation of gases that have occurred over the past 200 years or more of industrialization. However, it was China and India's exemption from the Protocol as noted above that caused, or gave the excuse for, the Bush Administration to withdraw from the agree-

ment, labeling Kyoto as unfair.⁸ As of March 13, 2003, however, 106 countries have ratified the Kyoto Protocol, far more than required, but the agreement is still shy of the necessary 55% emissions target to enter into force (UNFCCC, n.d.). Should Russia ratify the treaty, which it is expected to do in the near future, Kyoto would then meet the necessary criteria and go into effect (Akhtyrov, 2003; Fisher, this issue).

European Perspectives on Kyoto Protocol

Unlike in the U.S., the Bush Administration's rejection of the Kyoto protocol in 2001 produced a very strong negative reaction internationally, especially in Europe. Even religious leaders from Europe as well as the U.S. rebuked President Bush for his decision (Doogue 2001).⁹ Both the citizens of Europe and their leaders were outraged, especially by Bush's claim that it would hurt American businesses too much. A public opinion poll from five European countries, conducted by the Pew Research Center, the International Herald Tribune, and the Council on Foreign Relations and released on August 15, 2001, responded to a number of Bush's Administration's foreign policies, including the Kyoto agreement (Pew Research Center 2001). The poll presented results of national samples from Great Britain, Italy, Germany, France, as well as the U.S. It showed a very consistent and overwhelming negative reaction from the citizens of these countries regarding Bush's decision on Kyoto. The populace of each of five European countries disapproved the policy decision by eighty percent or more - Great Britain, 83; Italy, 80; Germany, 87; and France 85. Their approval ratings for the Bush Administration's position were only 10% to 12% for each of these European countries. See Figure 2.

Equally striking about the survey, however, are the views of U.S. residents. Although generally disappointed by the President's announcement, the reaction was much less severe than it was among our European allies. Only forty-four percent of the U.S. public disapproved of the action in 2001 (Pew Research Center 2001). This is roughly half the amount of their European counterparts. Similarly, twenty-nine percent of Americans were supportive of the policy move,



essentially three times more than the Europeans.¹⁰ This poll was taken about a month before September 11, 2001 terrorists' raids on New York and Washington, D.C., and hence the numbers discussed here were neither tainted by that event nor by the later disagreement over Iraq. A bit of information worth focusing on concerns the number of respondents who either refused to answer or did not know what to say about the President's decision. While the European percentages were single digit, ranging from three percent in Germany to eight percent in Italy, twenty-seven percent of the Americans surveyed did not have any opinion about the decision on Kyoto or refused to answer the question. This, along with the evidence presented earlier, may suggest that the U.S. citizens are not very knowledgeable about global warming and when in doubt they tend to support their party's position regarding the problem and any related policies (Krosnik and Visser 1998).¹¹ The action on Kyoto by the Bush Administration, as well as a few other foreign policy issues, placed the U.S. in direct disagreement with the European Union countries (Pew Research Center 2001). It was also part of a series of early positions by the Bush Administration that

started labeling the president and his administration as unilateralists, especially by Europeans.¹²

Conclusions

This article revisits the questions of cross-national public concern for global warming raised over a decade ago. Although the scientific community today speaks about global warming with a more unified voice concerning its anthropogenic causes and its potential devastating impacts across the globe, the citizens of a number of nations seem to still harbor some uncertainties about the problem itself and certainly lack a clear understanding of its sources. While majorities of publics across many nations speak of personal concern about global warming as well as on the seriousness of the problem, in all except a few countries, global warming seems to rank near or at the bottom of their list of environmental concerns. Although it could be argued that there has been a slight improvement over the last decade in the public's understanding regarding the anthropogenic causes of global warming, the people of all the nations studied remain largely uninformed about the problem. In the most recent international study on knowledge about global warming, the citizens of Mexico led all fifteen countries surveyed in 2001 with just twenty-six percent of the survey respondents correctly identifying that burning fossil fuels was the primary cause of global warming. The citizens of the U.S., among the most educated in the world, where somewhere in the middle of the pack, tied with the citizens of Brazil at fifteen percent. Even the Cubans, at seventeen percent, were slightly more informed than the American public.

Like his later stand on Iraq President Bush and his administration appears to have been equally out of step if not more so with the rest of the world when it came to withdrawing U.S. support from the Kyoto Protocol specifically and from the need to reduce our greenhouse emissions generally. Even Tony Blair, the Prime Minister of Great Britain, and to this point President Bush's staunchest ally concerning Iraq, has publicly disagreed with Bush's position on climatic change. At a February 24, 2003 British conference on sustainability Prime Minister Blair presented an ambitious plan to respond to global

warming by cutting carbon dioxide emissions in Britain by some sixty percent over the next five decades, far more than required by the Protocol (See Alvarez 2003). He also chided President Bush for failing to do more to combat global climatic change. In framing global warming as a national security issue, Mr. Blair said that it was wrong for the U.S. to back out of the 1997 Kyoto Protocol, adding, "economic growth and environmental awareness can coexist" (Alvarez 2003). Given the U.S. administration's actions regarding the Kyoto protocol and global warming generally, President Bush can most certainly be labeled a unilateralist.

It is clear from this research, however, that the U.S. public appears to be nearly as out of step with other nations on support on the Kyoto protocol as the Bush Administration itself. Although forty-four percent of the American people disapproved of President Bush's decision to withdraw from the protocol in 2001, this is essentially half the level of dissatisfaction found in Europe for the American President's action. Almost thirty percent of Americans supported his decision, approximately five to six times more so than Europeans.

There are many questions that remain. One of the more critical ones concerns the question of who is leading whom? Is the Bush Administration following the American public's uncertainty and ambivalence about the problem of global warming or is its stance on environmental issues generally, with global warming particularly, influencing American public opinion? Although this does not need to be an either/or answer, that is, both arguments could be at least partially correct, what little evidence that exists may suggest that American citizens continue to be influenced by political party lines. However, with the current popularity of President Bush, the general U.S. public support for his unilateralist approach so far, and the general acquiescence to date of the American public in a post September 11th era, the American public still may be willing to follow their President on this concern, now nearly two years after his decision on Kyoto. It is uncertain how long the American public will continue to let the Bush Administration to have its way on environmental issues. At the same time, it is unlikely that the American public will for long abandon its deep sup-

port for environmental protection (see Kempton et al 1995; Dunlap 2002, 2003). The questions that remain, however, are when will the American people demand more action on protecting the environment? And under what circumstances will that support emerge? On the particular topic of global warming, however, the international community, especially the Europeans and Japanese, may need to continue to serve as America's conscience.

Endnotes

1. The author would like to acknowledge the library assistance of Daniel Freeman and Veronica Wipple. Ms. Wipple also prepared the figures. He must also thank Eric Wahn from Environics International, Toronto Canada, for providing access to some of their data on cross-national knowledge about the greenhouse effect.
2. The Louis Harris and Associates were contracted by the United Nations Environment Programme to collect cross-national data on environmental concerns by citizens and public leaders in 16 nations as information for the 1992 UNCED conference in Brazil. It was limited methodologically, however, by collecting data mostly in urban areas. The Gallup Organization on its own as an effort to provide data for the UNCED conference as well were able to use national probability sampling in 24 nations.
3. Please note that a question on the level of concern about acid rain, the lowest among U.S. respondents in the survey above, was not asked in the HOP study. If this question is removed then global warming is ranked last among a list of environmental concerns.
4. A reasonable explanation for the low rankings might have to do with global warming's more future orientation. That is, its impacts are unlikely to be felt seriously any time soon, hence it faces an issue of socio-economic discounting when compared to other, more immediate threats. Although this makes some sense, researchers have found, however, that over 80% of Americans, at least, already believe that global warming is already a present reality and not a future problem. See Krosnik and Visser 1998. Surveys in Japanese in 2002 as well found that nearly 70% considered global warming as an immediate threat. See Kyodo News International, Inc. 2002.
5. The World Meteorological Organization and the United Nations Environment Programme in an effort to assess scientific technical and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation established the IPCC, the Intergovernmental Panel on Climate

Change. The IPCC's Third Assessment Report on climate change was released in 2001.

6. Dunlap 1998, however, disputes the general notion that citizens need to be well informed about complex environmental problems, like global warming, before they can be solved. Rather general public support for large-scale institutional level change is likely more effective than individual action in solving large collective action problems like global warming. While there is a point here, it could be argued as well that a better informed citizenry would be better prepared to distinguished among various policy options regarding institutional responses and be in position to support the more effective ones.

7. The Environics International's wording of the question, however, may cause some confusion among the respondents. In particular respondents may view "air pollution from factories and cars" as similar to burning of fossil fuels, although there are important distinctions among the two. This is a frequent problem in news reporting on global warming as well with reporters often calling greenhouse gases as pollutants.

8. Bush went on to say that the United States would pursue, at the time, an unspecified alternative path (White House 2001). That alternative path was unveiled on February 15, 2002 and was more or less a voluntary reduction program among American business organizations (New Scientist 2002). Under the plan, Bush encouraged industry to shoot for an 18 percent reduction in the amount of greenhouse gases the country produces for each unit of gross national product, more specifically, it would lower rate of emissions from around 183 tonnes per million dollars of GDP in 2002 to 151 tonnes in 2012 (New Scientist 2002). The criticism was swift as it switched the measure from total emission levels to reduction per unit of GDP, which actually allows for overall increase in emission levels. See Kleiner 2002, NRDC n.d.

9. See Doogue 2001. Presbyterian News service April 4, 2001. Religious leaders in Europe and the United States have expressed deep concern about the U.S. government's decision not to implement the Kyoto Protocol. Leaders argued that the Kyoto Treaty was ' the best practical

hope of undertaking a shared and proportionate responsibility for the effects of global warming’.

10. These general results on Kyoto were supported by two similar polls conducted one and four month earlier respectively. These earlier polls were conducted by Princeton Survey Research/ Pew Research Center poll from July 19-22, 2001 and found that 51% of Americans disapproved of Bush’s decision to withdraw from Kyoto agreement. Only 32% approved while 17% registered “no opinion” (Jones 2001). However, this also represented a slight improvement in the U.S. public’s support for the Bush decision over time. Three months earlier, in April 2001, about one month immediately after the Administration’s decision on Kyoto, the same polling group discovered that only 25% of the respondents approved of his decision, hence a seven percentage point increase between the two polls. Disapprovals of the President’s action also increased, but less so, up only 4 percentage points from 47% in April 2001 to 51% in July (Jones 2001). But by August 2001 public disapproval had declined to the reported 44% in the Pew survey (Pew Research Center 2001).

11. See Krosnik and Visser 1998 for more information on the political effects of the Clinton Kyoto campaign. The Clinton Administration’s effort in 1997 to rally the American public support for combating global warming and to gain approval for the Kyoto Protocol seemed to have only further divided the country. In particular, the scientific controversy in the U.S. media seemed to deepen attachment to partisan positions if not political ideology, with Democrats more concern about global warming and supportive of Kyoto than Republicans.

12. In a recent article, author Bill McKibben makes the argument that Bush’s trouble in securing greater United Nations support for actions in Iraq, especially by the members of the European Union, started with his unilateralist actions on Kyoto. (McKibben, W. 2003. A Change of Climate: The Bush Administration lost credibility over Kyoto, and can’t get it back over Iraq. Grist Magazine (March 13, 2003). <http://www.gristmagazine.com/cgi-bin/pringify-2.pl>)

13. Table 1: Gallup International Institute polling data based on a 1992 study using national probability samples in 24 countries. The question read: "Q14: Now lets talk about the world as a whole. Here is a list of environmental issues that may be affecting the world as a whole. As I read each, please tell me how serious a problem you personally believe it to be in the world – very serious, somewhat serious, not very serious, or not serious at all – or you don't know enough about it to judge? f. Global warming or the "greenhouse effect;"

14 Table 2: Gallup Polling results on "personal worry" about global warming from 1989-2002. The 2002 study is based on a national probability sample of 1,006 adults, 18 years and older, conducted March 4-7, 2002 with a margin of error of +/- of 3 % points. The remaining results are based on similar efforts during the dates indicated.

15 Table 3: The question read: "Now lets talk about the world as a whole. Here is a list of environmental issues that may be affecting the world as a whole. As I read each one, please tell me how serious a problem you personally believe it to be in the world – very serious, somewhat serious, not very serious, not serious at all – or you don't know enough about it to judge? a: Air pollution and smog; b. Pollution of rivers, lakes, and oceans; c. Soil erosion, polluted land, and loss of farmland; d. Loss of animal and plant species; e. Loss of the rain forests and jungles; f. Global warming or the greenhouse effect; g. Loss of the ozone in the earth's atmosphere.

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